

REMARKS

In the Office Action the Examiner objected to Claims 12-16. In turn, Applicant has amended independent Claim 11 so as to incorporate the prior content of Claim 12, thereby placing Claim 11 and Claims 12-16, dependent thereupon, in condition for allowance.

In the Office Action the Examiner rejected Claims 1-10 under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 5,678,171 to Toyama et al. Applicant submits that Claim 1 is allowable over the art.

Claim 1 sets forth a system for receiving broadcast satellite transmissions in a vehicle, comprising: an orientation system for determining an orientation of the vehicle in three dimensions, a controller which utilizes orientation data corresponding with said determined vehicle orientation and location data corresponding to a location of the vehicle relative to a predetermined positioning system (e.g. a GPS system) to determine position control data, and a one-dimensionally electronically pointable antenna mounted on a motorized turntable, wherein in open-loop operation the antenna is pointable in two dimensions in accordance with the position control data to receive a direct broadcast satellite signal. The system further includes a direct broadcast satellite receiver for processing a radio frequency signal corresponding with the direct broadcast satellite signal received by the electronically-pointable antenna, and a closed-loop feedback system to provide an output signal in response to the direct broadcast satellite signal received by the antenna, wherein in closed-loop operation the antenna is pointable in two dimensions utilizing the output signal to receive a direct broadcast satellite signal. The system also includes a signal lock for automatically activating and deactivating the closed-loop feedback system, wherein the system is in open-loop operation when the closed-loop feedback system is deactivated and in closed-loop operation when a closed-loop feedback system is activated.

The system of Claim 1 is low-cost due to the combinative utilization of a one-dimensional electronically pointable antenna and a motorized turntable to achieve two-dimensional pointing. The system also yields enhanced signal receipt due to the

combinative employment of (i) a signal lock and closed-loop feedback system for pointing the antenna during closed-loop operation, and (ii) the inclusion of an orientation system and controller for providing position control data to point the antenna during open-loop operation (e.g. during start-up operation and/or periods when there is no signal lock). The prior art fails to disclose or render obvious such an arrangement.

For example, Toyama et al. fails to disclose or suggest a system that combinatively employs both a signal lock/closed-loop feedback system for closed-loop operation and an orientation system/controller that provides position control data for antenna pointing during open-loop operation. Indeed, Toyama et al. fails to utilize any type of closed-loop feedback system in which a broadcast satellite signal is utilized for pointing control, much less as per the combinative arrangement of Claim 1. Rather, Toyama et al. actually teaches away from the use of such an approach (see, e.g. Column 1, Lines 13-28), instead totally relying upon a pointing approach that only utilizes navigation data derived from an airplane (see, e.g. Column 1, Lines 36-41, Column 2, Lines 65 – Column 3, Line 4, Column 3, Lines 19-42, Column 4, Lines 5-11, Column 5, Lines 4-9, Column 5, Lines 24-33). In this regard, Applicant notes that in the Office Action the Examiner referenced Column 4, Lines 24-51 of Toyama et al. in relation to the “closed-loop feedback” content of Claim 10. Applicant respectfully points out that Column 4, Lines 24-51, of Toyama et al. only pertains to transmittance tables and plots corresponding with antennas mounted at the front and rear of a radome having an arrester bonded thereto as shown in Figs. 2 and 3.

Further, Toyama et al. fails to disclose a system that combinatively employs a one-dimensional electronically pointable antenna and a motorized turntable in the same system to achieve two-dimensional pointing. In this regard, Applicant notes that Toyama et al. discloses two embodiments of a mobile receiver, i.e. wherein Figs. 1-11 correspond with a first embodiment and Figs. 12-14 correspond with a second embodiment. With respect to the first embodiment, Toyama et al. states:

The two antennas 3 are mounted on turn tables 17 and the rotation angle ϕ of the turn table 17 and the angle of inclination θ of the antenna 3 are controlled

by the control unit 7 and the drive unit 9 shown in FIG. 1 so that the two antennas 3 are always directed toward the broadcasting satellite regardless of the position and the attitude of the airplane.

Column 4, Lines 5-11. In short, Toyama et al. fails to disclose that the first embodiment thereof employs a one-dimensional electronically printable antenna and motorized turntable to achieve two-dimensional pointing.

With respect to the second embodiment, Toyama et al. fails to disclose the utilization of any mechanical pointing approach, much less a motorized turntable. Rather, and as shown in Figs. 13 and 14, the second embodiment employs antennas 23 that are mounted at fixed elevation and azimuth angles, stating in turn that:

[T]he control unit 27 calculates the direction of the broadcasting satellite on the basis of the data of the inertial navigator 5 mounted in the airplane, determines the array antennas 23 which can currently receive the electromagnetic wave, and the control unit 27 sends a control signal to the signal composition circuit 29. The signal composition unit 29 selects two or more optimum signals from the outputs of the twelve array antennas 23 on the basis of the control signal from the control unit 27 and in-phase composes them.

Column 5, Lines 24-33.

In view of the foregoing, Applicant submits that independent Claim 1 is in allowable form. Further, Applicant submits that Claims 2-10 are allowable for the same reasons as noted above in relation to Claim 1, and further since such Claims present additional combinative features not disclosed or rendered obvious by Toyama.

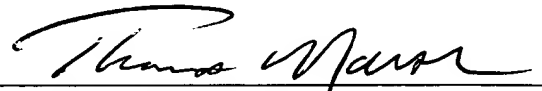
In the event that the Examiner further rejects one or more pending claims based upon a combination(s) involving one or more asserted "Official Notice" features or asserted knowledge in the art, Applicant respectfully requests that the Examiner identify specific prior art references to support such assertion(s), including any basis for asserting any prior art suggestion and/or motivation for making such combination(s).

Applicants believe that all pending claims are in condition for allowance and such disposition is respectfully requested. In the event that a telephone conversation would further prosecution and/or expedite allowance, the Examiner is invited to contact the undersigned.

Respectfully submitted,

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